



EG&G ROCKY FLATS INC
ROCKY FLATS PLANT P O BOX 464 GOLDEN COLORADO 80402-0464 (303) 966 7000

Community Relations Contact Terry Smith 966-2986
Media Relations Contact Jeff Schwartz 966-5866

**FACT SHEET ON SURFACE WATER INTERIM REMEDIAL ACTION PLAN
FOR
OPERABLE UNIT NO 2
(903 Pad, Mound and East Trenches Areas)**

A draft Federal Facility Agreement and Consent Order among the U S Department of Energy the U S Environmental Protection Agency and the Colorado Department of Health sets forth the activities and schedules for environmental restoration at the Rocky Flats Plant The plant is located approximately 16 miles northwest of Denver, Colorado

The draft agreement generally known as the Interagency Agreement divides the contaminated areas of the site into 16 operable units and ranks them according to cleanup priority Restoration activity began with an Interim Remedial Action at Operable Unit No 1 and will continue through Operable Unit 16 until all restoration work is complete Operable Unit No 2 (OU 2), which comprises the 903 Pad, Mound and East Trenches Areas is located in the east-southeast corner of the Rocky Flats Plant, approximately one and one-half miles west of Indiana Street

The contamination of the 903 Pad and Mound Areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive materials to leak into the surrounding soil Some additional contamination is thought to have resulted from wind dispersion during subsequent drum removal and soil movement activities

The East Trenches Area was used for the disposal of plutonium- and uranium contaminated waste and sanitary sewage sludge from 1954 to 1968 Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent some of which may have contained contaminants that were not removed by the treatment system

During the preliminary work on OU 2 water quality investigations identified the presence of organic chemicals and radionuclides in the surface water and ground water Most of the surface water contamination is in the form of seeps, which are areas where ground water emerges to the surface Most of the seeps do not flow for portions of the year

If not collected the water in the seeps would eventually flow to either Walnut Creek or Woman Creek and then into a series of detention ponds Water in the ponds is treated and sampled prior to and during release to evaluate compliance with the requirements of the Rocky Flats Plant's National Pollutant Discharge Elimination System permit and other applicable standards

ADMIN RECORD

A-0002-000070

The design and development of a final remedy to address all of the contamination at OU 2 will require lengthy technical investigations and assessments. Hence, the U S Department of Energy is implementing the Interim Remedial Action to control and treat contaminated surface water in the immediate area of OU 2 at the request of the U S Environmental Protection Agency and the Colorado Department of Health. The Interim Remedial Action described below is scheduled to begin in February 1991.

Some of the water collection will take place at or near the areas where contaminated ground water seepage to the surface occurs. Surface water also will be collected from Upper South Walnut Creek, upstream of the existing detention ponds. Once collected, the surface water will be pretreated to remove suspended solids, radionuclides and metals. Organic contaminants will be removed in a subsequent treatment process.

Pretreatment to remove suspended solids down to the one-tenth (0.1) micrometer particle size range will ensure optimum performance of the other treatment units. Pretreatment methods are also capable of removing radionuclides and metals in particle form and can be used to facilitate the removal of the same materials in soluble form. Pretreatment methods considered for the surface water Interim Remedial Action were:

- chemical precipitation with cross-flow membrane filtration,
- polymer addition with contact filtration, and
- ion exchange

Chemical precipitation with cross-flow membrane filtration involves the addition of chemicals to the water to convert soluble radionuclides and metals into particulate form in a process called precipitation. The soluble radionuclides and metals can also adhere to iron oxide particulates in the water that are formed when the chemicals are added. This adhering process, known as adsorption, and the precipitation process create particles of a size that can be filtered out of the water. In cross-flow membrane filtration, the mixture of water and added chemicals is forced under pressure through a tubular filter. Clean water passes through the filter, leaving the particulate material in the tube.

The second technology considered requires the addition of a polymer to the water prior to filtration of the water through a bed of sand. A polymer is a long-chained natural or synthetic compound that causes radionuclide and metal particles to bind, thereby creating material that can be removed effectively by filtration.

The ion exchange method involves passing water through a tube containing a bed of resin beads. The bead surface reacts with soluble radionuclides and metals, causing the material to adhere to the resin.

ADMIN RECORD

The technologies evaluated for the removal of organic constituents from the water were

- granular activated carbon adsorption,
ultraviolet peroxide oxidation, and
- air stripping with liquid and vapor phase granular activated carbon

Granular activated carbon is carbon that has been heated with steam to create a porous surface. This "activation" technique produces more surface on each granule, which, in turn, provides for greater adsorption of organics onto the carbon surface.

In ultraviolet peroxide oxidation, peroxide is added to the water, and the resulting solution is exposed to ultraviolet light. The light causes the peroxide to form a reactive chemical that decomposes the organic material.

Air stripping is a technology that takes advantage of the tendency for volatile organic chemicals to vaporize. The air stripper is a tube through which the water flows downward while air is piped in from below. The air and water then pass separately through granular activated carbon systems that collect the organics from them.

The preferred alternative pretreatment and treatment technologies selected as a result of the evaluation were chemical precipitation with cross-flow membrane filtration for suspended solids, radionuclides and metals removal, followed by granular activated carbon adsorption for organics removal. Cross flow membrane filtration was selected for the removal of suspended solids, radionuclides and metals because it is a reliable, proven and effective technology. For the removal of organics, granular activated carbon adsorption is reliable, easy to operate and the most cost effective of the technologies examined. The complete analysis of technologies is provided in the Interim Remedial Action Plan.

The effectiveness of the preferred treatment system will be verified through laboratory and field treatability studies. The U.S. Department of Energy expects to install a pilot field treatability unit in March 1991 to demonstrate organic contaminant removal efficiencies.

The early phases of the pilot field treatability tests will intercept water from one contaminated seep that flows into South Walnut Creek and will also withdraw surface water from South Walnut Creek itself. After treatment, the water will be returned to South Walnut Creek above the detention ponds. Hence, immediately upon startup, the field treatability test unit will provide the added benefit of reducing the contaminant load on the detention ponds.

Additional treatment units will be installed at a later date to evaluate radionuclides and metals removal. A summary of the treatability study findings will be submitted to the U.S. Environmental Protection Agency and the Colorado Department of Health upon completion of the program. All construction of collection and treatment equipment is scheduled for completion no later than October 1991.

Opportunities exist for public involvement in the implementation of the OU 2 Interim Remedial Action. The U S Department of Energy's **Proposed Draft Surface Water Interim Measures/Interim Remedial Action Plan and Decision Document for the 903 Pad, Mound and East Trenches Areas (Operable Unit No 2)** is available for public review at the following locations

Rocky Flats Public Reading Room
Front Range Community College Library
3645 W 112th Avenue
Westminster, Colorado
(303) 469-4435

U S Environmental Protection Agency
Superfund Records Center
999 18th Street, 5th Floor
Denver, Colorado
(303) 293-1824

Rocky Flats Environmental Monitoring Council
1536 Cole Boulevard, Suite 150
Golden, Colorado
(303) 232-1966

Colorado Department of Health
4210 E 11th Avenue, Room 351
Denver, Colorado
(303) 331-4421

A 60 day public comment period on the Interim Remedial Action Plan is effective from September, 26, 1990, to November 24, 1990. Written comments during this period should be submitted to

Beth Brainard
Public Affairs Officer
Rocky Flats Office
U S Department of Energy
P O Box 928
Golden, Colorado 80402-0928
(303) 966-5993

In addition, a public meeting for the presentation of oral comments will be held Tuesday, October 23, 1990, from 7:00 p m to 10:00 p m , at the Westminster City Park Recreation Center, 10455 Sheridan Boulevard, Westminster

EFS-08-90